

ACCESSION NR: AP4019226

small changes in amplitude. It is found that the nonlinearity of electronic origin appears as a rule much earlier than the nonlinearity of the elastic properties of the crystal. The nonlinear effects lead to the existence of stationary waves which propagate in the crystal without amplification or damping. An expression is derived for the amplitude of the waves as a function of the stationary electric field strength. The damping or growth of waves that differ little from stationary waves is studied. It is shown that both oscillation modes are stable at high viscosity, so that a critical value of viscosity exists in the case of the second mode. Orig. art. has: 68 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR (Institute of Semiconductors, AN SSSR)

SUBMITTED: 27Jun63

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: PH

NO REF SOV: 005

OTHER: 005

Card 2/2

GUREVICH, V.L.; FIRSOV, Yu.A.

New oscillation mode of the longitudinal magnetoresistance in semi-conductors. Zhur. eksp. i teor. fiz. 47 no.2:734-743 Ag '64.
(MIRA 17:10)

1. Institut poluprovodnikov AN SSSR.

L 15013-65 EMT(1) IJP(c)/ASD(a)-5/ESD(gs)/ESD(t)
ACCESSION NR: AP4047897

S/0056/64/047/004/1291/1302

AUTHOR: Gurevich, V. L.

TITLE: Buildup of oscillations in an unstable system. II.

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 4, 1964,
1291-1302

TOPIC TAGS: piezoelectric semiconductor, acoustic wave, elastic vibration,
electron density fluctuation, acoustic instability

ABSTRACT: The first part of the article was published in ZhETF, v. 46, 354 (1964). The buildup of acoustic fluctuations in a piezoelectric semiconductor is analyzed for the case of a sonic instability induced by a constant electric field and for the case where semiconductor dimensions limit the growth of the fluctuations to a level such that the nonlinear effects have no opportunity to play a major role. An equation is derived for the fluctuation intensity over a frequency interval much broader than that involved in the analogous equation in the first part of the paper. It is shown that the acoustic fluctuations in a piezoelectric semiconductor can be described in terms of the equations of elasticity theory with random forces, and a method is indicated for calculating the correlation functions between the random

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ACCESSION NR: AP4047897

forces and the unstable states induced by the constant electric field. It is shown also that an equation for the observed mean products of the random quantities can be derived directly from these equations. The refinement consists essentially of taking into account the interaction between the elastic vibrations and the electron-density fluctuations in a higher order of magnitude. The possibility of using this method to describe growing fluctuations in other cases of instability is also discussed. Orig. art. has: 46 formulas.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences, USSR)

SUBMITTED: 16Jan64

ENCL: 00

SUB CODE: SS, GP

NO REF SOV: 005

OTHER: 008

ATD PRESS: 3143

Card 2/2

L 16102-65 EWT(1)/EWG(k)/T/EWA(h) Pz-6/PeB IJP(c)/ESD(dp)/ESD(t)/
ESD(gs)/ESD(c)/AFWL/ASD(a)-5/AFETR/RAEM(a) AT S/0056/64/047/005/1782/1789
ACCESSION NR: AP5000333

AUTHORS: Gurevich, V. L.; Kagan, V. D.

TITLE: Rayleigh scattering of light during sound instability

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 5, 1964, 1782-1789

TOPIC TAGS: light scattering, Rayleigh scattering, sound instability, sound fluctuation, line shape, correlation statistics

ABSTRACT: A theory is developed for the scattering of light occurring during sound instability in the "linear" region. The author determines not only the integral intensity of the light scattered in a given direction, but also the shape of the Rayleigh scattering line. The case of scattering of light in piezoelectric semiconductors during some instability is considered, with the intensity of the increasing sound fluctuations assumed relatively small, so that

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ACCESSION NR: AP5000333

the linear theory can be employed for the description. It is shown that as the damping factor decreases and tends to zero, the line loses the Lorentz shape and its form is affected by the dimensions of the semiconductor in the direction in which the fluctuations increase. When the sign of the attenuation reverses and its absolute value increases again, the line resumes the Lorentz shape. In order to determine the line shape, the authors construct a phenomenological theory of the time correlations of the increasing sound fluctuations. This is a continuation of earlier work by one of the authors (Gurevich, ZhETF v. 46, 354, 1964 and v. 47, 1291, 1964). Expressions are then derived for the extinction coefficient, which can be compared with experiment. Such a comparison would show when the nonlinear effects, which the theory can at present not explain, begin. It is shown that even in the linear approximation the intensity of the scattering can exceed that occurring in thermodynamic equilibrium by two or three orders of magnitude. The theory of growing fluctuations, constructed in the earlier papers

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ACCESSION NR: AP5000333

of the authors, is generalized to take into account the time correlation of the fluctuations. Orig. art. has: 28 formulas.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences SSSR)

SUBMITTED: 16Apr64

SUB CODE: OP

NR REF SOV: 009

ENCL: 00

OTHER: 008

Card 3/3

L 14031-65 EWT(1)/EWG(k)/T/EWA(h) Pub IJP(c)/SSD/AFM/ASD(a)-5/RAEM(a)/ESD(qs)/
 ESD(t) AT
 ACCESSION NR: AP4043652 8/0056/64/047/002/0734/0743

AUTHOR: Gurevich, V. L.; Firsov, Yu. A.

TITLE: New type of oscillations of longitudinal magnetic resistance of semiconductors

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 8, 1964, 734-743

TOPIC TAGS: magnetic resistance, semiconductor, electron phonon interaction, elastic scattering, oscillation

ABSTRACT: Transverse oscillations were predicted theoretically by the authors (ZhETF v. 40, 199, 1961 and v. 41, 512, 1961) and observed experimentally by S. M. Puri and T. H. Geballe (Bull. Am. Phys. Soc. v. 8, no. 4, 1963, 309). In this article the authors develop a theory for the oscillations of the longitudinal magnetic resistance, caused by resonant scattering of electrons by optical phonons in a strong magnetic field ($\Omega\tau \gg 1$; Ω -- cyclotron fre-

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L 14031-65

ACCESSION NR: AP4043652

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quency, τ - relaxation time of the conduction electrons). An attempt is also made to interpret the available experimental data. It is shown that when the scattering by optical phonons predominates, the maxima of the longitudinal and transverse resistances at resonance coincide. If the scattering by optical phonons is small compared with scattering by acoustic phonons, the maxima of the transverse magnetic resistance correspond to minima of the longitudinal magnetic resistance. The electrons are assumed to obey Boltzmann statistics and their spin is neglected. The results are therefore applicable only when electron scattering with spin flip is much less probable than scattering without spin flip. The results will also be different in semiconductors with large impurity density, where elastic scattering by the impurities predominates over scattering by acoustic phonons. "The authors thank S. S. Shalyt for reviewing the manuscript and for many valuable remarks, and R. V. Parfen'yev for great help in preparing the manuscript for publication." Orig. art. has: 1 figure and 31 formulas.

Card 2/3

L 14031-65

ACCESSION NR: AP4043652

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, AN SSSR)

SUBMITTED: 06Mar64

ENCL: 00

SUB CODE: SS

NO REF SOV: 007

OTHER: 001

Card 3/3

L 6452-66 EWT(1)/EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EED(b)-3/EWA(h)/ETC(m)
 ACCESSION NR: AP5019857 IJP(c)/ JD/WW/AT UR/0181/65/007/008/2400/2412

AUTHOR: Gantsevich, S. V.; Gurevich, V. L.

TITLE: Theory of the acoustoelectric effect in type n-Ge and n-Si semiconductors

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2400-2412

TOPIC TAGS: silicon semiconductor, germanium semiconductor, acoustic effect, acoustoelectric effect, kinetic equation, impurity scattering, phonon, relaxation process

ABSTRACT: The authors construct a microscopic theory of the acoustoelectric effect first observed in many-valley semiconductors by Weinreich et al. (Phys. Rev. v. 114, 33, 1959). They show that the earlier phenomenological theories of this effect are applicable only in a narrow region, outside of which the expressions obtained for the acoustoelectric emf differ from experimental results attainable by contemporary experimental techniques. By solving the kinetic equation, they obtain expressions for the electroacoustic current, valid also when the relaxation times for the transition between valleys is of the same order as the time of establishment of equilibrium within a given valley. Two cases of intervalley relaxation are considered: elastic transitions, due to scattering by impurities, and inelastic transition with absorption or emission of a phonon with wave vector equal to the

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ACCESSION NR: AP5019857

distance between the valley centers. Expressions for the current in the case when the two relaxation times differ greatly are also obtained. In many cases the expressions differ appreciably from those obtained by Weinreich et al. and those obtained in the phenomenological theory of V. L. Gurevich and A. L. Efros (ZhETF v. 44, 2131, 1963). The calculation does not take into account electron-electron interaction, and is therefore valid only if scattering of the electrons by phonons predominates, or in the case of impurity scattering, when the density of the scattering centers exceeds the density of the conduction electrons. Orig. art. has: 55 formulas.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AN SSSR)

SUBMITTED: 06Mar65

ENCL: 00

SUB CODE: SS

NR REF SOV: 007

OTHER: 003

nw

Card 2/2

L 5403-66 EWT(1)/EPF(n)-2/T/EED(b)-3/EWA(h)/ETC(m) IJP(c) WW/AT

ACC NR: AP5027397

SOURCE CODE: UR/0181/65/007/011/3218/3226

AUTHOR: Gurevich, V. L.; Daykhtman, B. D.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Theory of sonic emission in piezoelectric semiconductors

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3218-3226

TOPIC TAGS: sound, semiconductor theory, piezoelectric effect

ABSTRACT: The paper is a direct continuation of a previous article by these authors (V. L. Gurevich, B. D. Daykhtman, ZhETP, 49, 960, 1965). A doped semiconductor with current carriers of a single sign assumed to be electrons is considered, or alternatively a photoconductor with a short hole lifetime, e. g. CdS. A theory is proposed to explain the mechanism responsible for generation of standing sound waves of low intensity in piezoelectric semiconductors in a steady electric field. Orig. art. has: 48 formulas.

SUB CODE: SS/

SUBM DATE: 03May65/

ORIG REF: 008/

OTH REF: 006

Card 1/1

L 12179-66 GWT(1)/EPF(n)-2/T/SEA(h)/ETC(m) IJP(c) NM/AT

ACC NR: AP5024719

SOURCE CODE: UR/0056/65/049/003/0960/0974

AUTHORS: Gurevich, V. L.; Laykhtman, B. D.

ORG: Institute of Semiconductors, Academy of Sciences SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Nonlinear theory of sound instability in piezoelectrics

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 960-974

TOPIC TAGS: sound wave, piezoelectric crystal, semiconductor crystal, acoustic transducer

ABSTRACT: This is a continuation of an earlier study of the role of nonlinear effects in the propagation of traveling waves (ZhETF v. 46, 598, 1964). In the present article, a nonlinear theory is constructed for small-amplitude nonstationary waves traveling in piezoelectric semiconductors situated in a constant magnetic field. The question of how the stationary waves are formed is discussed. It is shown that a traveling sound wave goes over when amplified into a stationary wave provided the nonlinear correction to the damping coefficient of sound is greater than zero. A calculation of this correction is performed by the

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L 12179-66

ACC NR. AP5024719

method of amplitude iteration, and the conditions under which the correction is positive are determined. The law governing the transition of the small-amplitude traveling wave into the stationary wave is determined for waves whose amplification coefficient and phase velocity depend on the amplitude. It is shown that the method should be applied differently in cases of strong and weak decay (or buildup) of sound waves. Orig. art. has: 85 formulas.

SUB CODE: 20/ SUBM DATE: 20Apr65/ NR REF SOV: 009/ OTH REF:010

Card

FW
2/2

L 12799-66

EWI(1)/EWA(m)-2

IJP(e)

AT

ACC NR: AP5026607

SOURCE CODE: UR/0056/65/049/004/1145/1156

AUTHORS: Gurevich, V. L.; Katilyus, R.

ORG: Institute of Semiconductors, Academy of Sciences SSSR (Institut poluprovodnikov Akademii nauk SSSR); Institute of Physics and Mathematics, Academy of Sciences Lithuanian SSR (Institut fiziki i matematiki Akademii nauk Litovskoy SSR)

TITLE: Contribution to the theory of hot electrons in an anisotropic semiconductor

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1145-1156

TOPIC TAGS: semiconductor crystal, crystal anisotropy, electron energy, phonon scattering, electron scattering, electric conductivity

ABSTRACT: The authors propose to calculate within the framework of the deformation potential the stationary state and the fluctuations of a system of electrons in an anisotropic semiconductor situated in a strong electric field, for the case of scattering by acoustical phonons within a single energy valley with a nondegenerate bottom. No relaxation time is taken into account. It is shown that owing to the quasielastic

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Card 2/2

ACC NR: AP7003211

SOURCE CODE: UR/0054/66/051/006/1693/1702

AUTHOR: Gurevich, V. L.; Efros, A. L.

ORG: Institute of Semiconductors, Academy of Sciences, SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Second sound and absorption of ordinary sound in dielectrics

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1693-1702

TOPIC TAGS: sound absorption, dielectric material, acoustic effect, acoustic damping

ABSTRACT: The authors derive a set of microscopic equations describing the transport of heat in dielectrics in low temperatures, when the characteristic time of the normal processes is short compared with the characteristic time of umklapp processes. The purpose of the calculation is to indicate a new method of investigating second sound and phenomena related to it. This method is based on the interaction between the second sound and ordinary sound. It is shown that measurement of the absorption coefficient (and of the velocity) of ordinary sound at sufficiently high frequencies makes it possible to investigate the region of existence of second sound and various quantitative characteristics of the second sound. New data obtained as a result of this investigation are a quantitative theory of the damping of second sound, a theory for the interaction of first and second sound, and a theory for the damping of first sound in the region of frequencies where dispersion of thermal conductivity comes into play. Orig. art. has: 1 figure and 50 formulas.

SUB CODE: 20/ SUBM DATE: 11Apr66/ ORIG REF: 002/ OTH REF: 008

Card 1/1

ACC NR: AT7004422

SOURCE CODE: UR/0000/66/000/000/0130/0134

AUTHOR: Gurevich, Ya. B.; Ushakov, Ye. V.; Drobysheva, Ye. K.; Osipov, V. G.; Orzhekhovskiy, V. L.

ORG: none

TITLE: Plasticity of tungsten in vacuum rolling

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pro deformirovani metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 130-134

TOPIC TAGS: ~~sintered tungsten~~, ~~sintered tungsten~~ rolling, ~~sintered tungsten~~ property, ~~sintered tungsten~~ structure, ^{metal} powder metal ^{sintering}

ABSTRACT: The plastic properties of hydrogen-or vacuum-sintered tungsten and vacuum-arc melted tungsten have been investigated. Specimens 12 x 12 mm were sintered at 1200°C for 2 hr in a hydrogen atmosphere and then in vacuum. An ingot 50 mm in diameter was vacuum-arc melted with a consumable electrode from hydrogen-sintered tungsten. Hydrogen-sintered tungsten failed at a bend angle of 35 degrees, even at temperatures up to

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UDC: none

ACC NR:AT7004422

1100°C, and remained brittle at room temperature. Cast tungsten has an elongation of 1% and reduction of area 3.5%. The respective elongation and reduction of area at 400°C were 2 and 6% for hydrogen-sintered tungsten and 3 and 5% for vacuum-sintered tungsten. The latter has the highest plasticity and can be vacuum rolled with a 61% reduction at 1300°C without failure, compared to 45% for hydrogen-sintered tungsten. [AZ]
Orig. art. has: 2 figures.

SUB CODE: 11,13/ SUBM DATE: 27Sep66/ ORIG REF: 002/ ATD PRESS:5117

Card 2/2

5.3400

77861
SOV/79-30-2-12/78

AUTHORS: Yur'yev, Yu. K., Zefirov, N.S., Shteynman, A. A., Gurevich, V. M.

TITLE: Study of the Furan Series. III. Reaction of 2-Methyl- and 2-Ethylfuran with Mesityl Oxide

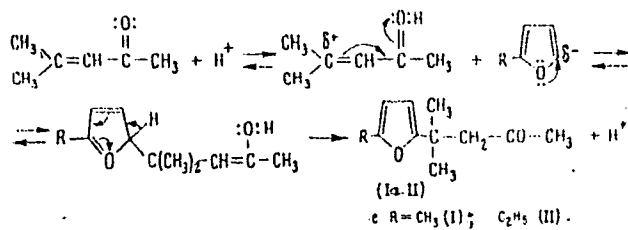
PERIODICAL: Zhurnal obshchei khimii, 1960, Vol 30, Nr 2, pp 411-415 (USSR)

ABSTRACT: The authors synthesized 1,1-dimethyl-1-(5-methylfuryl-2) butanone-3 (I) and 1,1-dimethyl-1-(5-ethylfuryl-2) butanone-3 (II) by reacting mesityl oxide with 2-methyl- and 2-ethylfuran, respectively, demonstrating that the furan ring can react with β , β -dimethylvinyl group of the α - β -unsaturated ketones (see scheme A).

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Study of the Furan Series. III. Reaction of 2-Methyl- and 2-Ethylfuran with Mesityl Oxide

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Scheme A

This reaction was conducted in a round-bottom flask provided with a mixer and a reflex condenser. The reaction mixture (the reagents were dissolved in hydroquinone) was heated for 8 hr on the water bath. The reaction mass was then diluted with ether, washed with sodium carbonate and water, and dried over CaCl₂. The best catalysts were found to be concentrated sulfuric acid and boron trifluoride etherate. Repeated distill-

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Study of the Furan Series. III. Reaction of 2-Methyl- and 2-Ethylfuran with Mesityl Oxide

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SOV/79-30-2-12/78

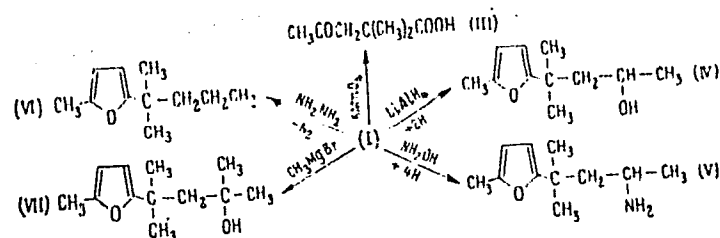
ation yielded the addition products. Characteristics of 1,1-dimethyl-1-(5-methylfuryl-2)butanone-3 (I): bp 106-107° (15 mm); n_D^{20} 1.4700; d_4^{20} 0.9723; its semicarbazone, white leaflets, mp 136-137°, 2,4-dinitrophenylhydrazone, yellow needles; mp 109.5-110°, was characterized by infrared spectrum. The 1,1-dimethyl-1-(5-ethylfuryl-2)butanone-3 (II): bp 114° (13 mm); n_D^{20} 1.4682; d_4^{20} 0.9577; 2,4-dinitrophenylhydrazone, orange needles; mp 90.5-91°, characterized by infrared spectrum. Reactions of prepared ketones were studied on example of 1,1-dimethyl-1-(5-methylfuryl-2)butanone-3. Scheme B shows the reactants and the products of the five reactions studied.

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Study of the Furan Series. III. Reaction of 2-Methyl- and 2-Ethylfuran with Mesityl Oxide

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SOV-79-30-2-12/78



Scheme B
The constants of the derived compounds: (1) α, α di-methyllevulinic acid (III): mp 76-76.5°; (2) 1,1-dimethyl-1-(5-methylfuryl-2)butanol-3 (IV), bp 106° (10 mm), n_D^{20} 1.4770, d_4^{20} 0.9690, characterized by infrared spectrum; (3) 1,1-dimethyl-1-(5-methylfuryl-2)-3-aminobutane (V), bp 104-105° (10 mm), n_D^{20} 1.4580, d_4^{20} 0.8814; (4) 1,1-

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Study of the Furan Series. III. Reaction of 2-Methyl- and 2-Ethylfuran with Mesityl Oxide

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-dimethyl-1-(5-methylfuryl-2)butane (VI): bp 75-76° (20 mm), n_D^{20} 1.4529, d_4^{20} 0.8738; (5) 1,1,3-trimethyl-1-(5-methylfuryl-2)butanol-3 (VII): bp 89-90° (6mm), n_D^{20} 1.4800, d_4^{20} 0.9703. The authors thank L. A. Kazitsyna for measurement of spectra. There are 8 references, 3 Soviet, 3 German, 1 French, 1 U.S. The U.S. reference is Ch. A., 47, 1744 (1953).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: February 4, 1959

Card 5/5

YUR'YEV, Yu.K.; ZEFIROV, N.S.; GUREVICH, V.M.

Furan series. Part 19: Reactions of alkylfurans with -unsaturated ketones. Zhur. ob. khim. 31 no. 11:3531-3534 N '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Furan) (Ketones)

GUREVICH, V.M.

Conference on the problems of the petrochemical and oil- and gas-
industries in the light of the decisions of the 22nd Congress of
the CPSU. Izv.vys.ucheb.zav.: neft' i gaz 5 no.8:116-120 '62.
(MIRA 17:3)

67025

SOV/137-59-10-22149

24.7400
24.7700

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 10, p 125 (USSR)

AUTHORS: Smolyanskiy, R.Ye., Lukasevich, M.I., Gurevich, V.M.

TITLE: The Importance of Treating Germanium Surfaces Prior to Obtaining Alloying
Indium-Germanium p-n-Transition ¹

PERIODICAL: Tyazh. prom-st' Podmoskov'ya (Mosk. obl. sovnarkhoz), 1958, Nr 8, pp 11-17

ABSTRACT: It was found out by electronographical and metallographical analyses that the layer with a distorted crystalline lattice on the Ge surface after mechanical treatment (cutting, polishing) was 60 - 90 μ . The optimum proportion of components in the etching agent H_2O_2 : NaOH was found which ensures maximum effect of Ge solution: 9 - 10 cm³ (25%) NaOH per 1 liter (30%) H_2O_2 . It was stated that the Ge layer, distorted due to mechanical treatment, was fully eliminated by triple etching with the indicated agent. Oxalate agent is recommended for Ge as most efficient. The author stated that one of the causes of short-circuit p-n-transitions in welding-in In 4

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67025

SOV/137-59-10-22149

The Importance of Treating Germanium Surfaces Prior to Obtaining Alloying Indium-Germanium
p-n-Transition

into Ge was the formation of "blank spots", i.e. areas where fusion of In and Ge did not
take place. The author supposes that the formation of such "blank spots" can be ex-
plained by insufficient preliminary treatment of Ge surface, prior to welding-in. 4

E.T.

Card 2/2

24(6)

S07/57-28-10-6/40

AUTHORS:

Smolyanskiy, R. Ye., Gurevich, V. M., Raykhlin, A. M.,
Lukasevich, M. I.

TITLE:

Investigation of the Industrial Etching of the Surface of Mono-
crystalline Germanium Previous to Fusing With Indium
(Issledovaniye promyshlennogo travleniya poverkhnosti mono-
kristallicheskogo germaniya pered vplavleniyem v nego indiya)

PERIODICAL:

Zhurnal tekhnicheskoy fiziki. Vol 28, nr 10, pp 2135-2141 (USSR)¹⁹⁷⁸

ABSTRACT:

This is an investigation of the industrial etching of germanium after cutting and polishing. It was carried out by means of electron diffraction analyses (as suggested by the authors of reference 1) and by means of micrographs: The results are as follows: 1) It is possible to advance an eventual mechanism of the etching of germanium in an alkaline agent, for which an optimum composition is given: $8 \div 10 \text{ cm}^3$ 25% NaOH per 1000 cm^3 30% H_2O_2 . 2) It was found that a film of GeO_2 remains on the germanium surface after etching in an alkaline agent, which does not dissolve. It is, however, easily removable by rinsing the etched germanium in hot distilled water. 3) In order to in-

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SOV/57-2-10-6/40

Investigation of the Industrial Etching of the Surface of Monocrystalline Germanium Previous to Fusing With Indium

crease the efficiency of the etching process it is recommended to rinse the germanium samples between subsequent etching treatments. 4) When germanium is sawed through with steel saw blades a disturbed layer results with a thickness of 90μ . 5) Considerations are presented bearing on the difference in the absorption capability of germanium surfaces etched with alkaline agents and of such etched with adhesive agents. A treatment with the latter results in an increase of the probability of a physical sorption of gases. The existence of ions promotes the sorption of moisture. 6) Recommendations are presented concerning the choice and the uniformity of etching processes of the source germanium and of the finished p-n junctions with respect to the type of apparatus which is to incorporate the transistors.

The electron diffraction unit of the Institut kristallografii AN SSSR (Institute of Crystallography AS USSR) in the laboratory of Professor Z. G. Pinsker was used for the electron diffraction analyses. There are 10 figures, 1 table, and 5 references, 4 of which are Soviet.

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SOV/57-28-10-5 40

Investigation of the Industrial Etching of the Surface of Monocrystalline Germanium Previous to Fusing with Indium

SUBMITTED: December 17, 1957

Cara 5/3

SOV/0-4-5-15/36

AUTHORS: Gurevich, V. M., Zheludev, I. S., Rez, I. S.

TITLE: Some of the Electric Conductivity Characteristics
of Guanidine Aluminum Sulfate Hexahydrate

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 5, pp 718-722
(USSR)

ABSTRACT: The authors describe the method and results of the resistivity measurements conducted by the use of direct current, applied to the single-crystal plates of guanidine aluminum sulfate hexahydrate, whose ferroelectricity has been known since 1955. The plates, 1 cm² and 1-2 mm thick, cut off transverse to the Z axis from different pyramids of growth of an artificial single crystal of the compound, were silvered sublimating thin Ag films under vacuum, dried, some polarized by an applied field above the coercive field, and the susceptibilities of both polarized and natural (nonpolarized) plates were measured by IIW-2 in dry air (above H₂SO₄). No

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Some of the Electric Conductivity Characteristics
of Guanidine Aluminum Sulfate Hexahydrate

1955
SOV/70-4-5-15/36

dehydration occurred. The resistivity changes in the course of polarization at 3 different fields (a-curves) and the required time for the complete polarization at various fields, E, (b-curve), are illustrated in Fig. 1. The measurements at various temperatures disclosed anomalous (higher) resistivities at the moment of polarization at about 500° C except in the case of existence of a residual polarization. In the vicinity of 500° C the spontaneous polarization also takes place, an abrupt change of the piezoelectric effect

and of the $\frac{\rho_1}{\rho_3}$ ratio see (Fig. 4). ρ_1 means resistivity at the moment of complete polarization of natural plates; ρ_3 , the same of plates that have been polarized previously. It is still not known whether the temperature interval of anomalies is related to the temperature of growth, which in this case was 400°-600° C. There are 6 figures; and 4 references, 2 Soviet, 2 U.S., The U.S. references are A. N. Holden, et al., Phys. Rev., 98, 546 (1955),

Card 2/4

Some of the Electric Conductivity Characteristics
of Guanidine Aluminum Sulfate Hexahydrate

75993
SOV/70-4-5-15/36

and 102, 962 (1956).

SUBMITTED: March 10, 1959

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Some of the Electric Conductivity Characteristics
of Guanidine Aluminum Sulfate Hexahydrate

75993
SOV/70-4-5-15/36

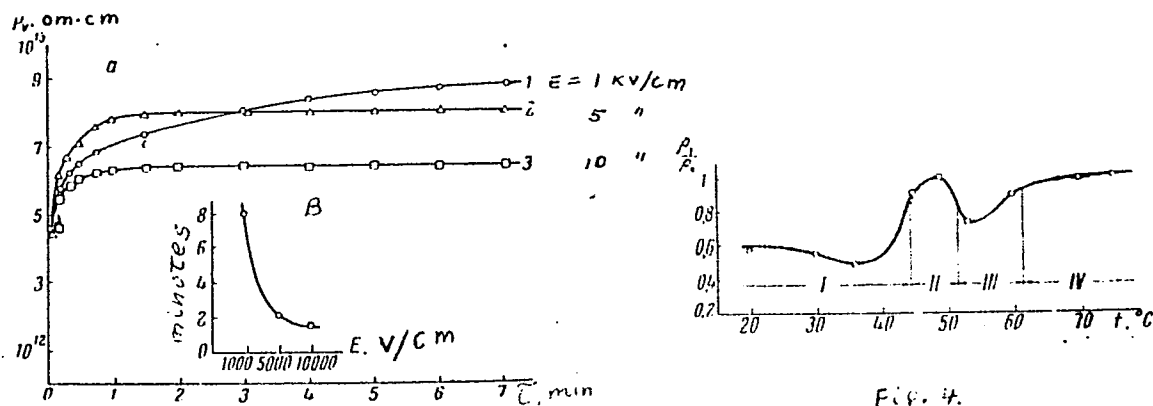


Fig. 1.

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GUREVICH, V.M.; ZHELUDEV, I.S.

Seignettoelectric properties of single crystals of triglycine sulfate in a frequency band from 0.01 to 50 c.p.s. Izv. AN SSSR Ser. fiz. 1342-1346 N '60. (MIRA 13:12)

1. Institut kristallografii AN SSSR.
(Ferroelectric substances)

Gurevich, V. M.

81961
S/181/60/002/04/21/034
B002/B063

24.7700

AUTHORS:

Gurevich, V. M., Rez, I. S.

TITLE:

Transitional Processes of Conductivity in BaTiO₃ Ceramics
at Constant Current

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4; pp 673-678

TEXT: The resistivity of polycrystalline barium titanate through which a constant current passes was measured by means of an RFT tera-ohmmeter of the type 1001 and an Φ -57 (F-57) tera-ohmmeter. The authors measured the temperature dependence of σ (Fig. 1), the transitional processes occurring in volume- and surface conduction (Fig. 2), the field dependence of the transitional processes, (Fig. 3), and the transitional processes of conductivity in polarized and unpolarized barium titanate (Fig. 4). The transitional processes of conductivity have a ferroelectric nature. They may be used to study ferroelectric polarization, polarization energy, coercive fields, and to obtain new ferroelectric materials. The percentage of domains (13%) to which the occurrence of residual polarization in polarized material is ascribed, was calculated from the difference

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Transitional Processes of Conductivity in
BaTiO₃ Ceramics at Constant Current

81961
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B002/B063

between the electrical conductivity of polarized and unpolarized barium titanate. An effect of the transverse electric field upon conductivity was observed. It has apparently a ferroelectric nature. The authors thank I. S. Zheludev and L. Z. Rusakov for their interest in this work. There are 4 figures and 4 references: 1 Soviet, 1 American, 1 German, and 1 Japanese. X

SUBMITTED: October 7, 1958

Card 2/2

Gurevich, V. M.

S/181/60/002/04/24/034
B002/B063

24.7700
AUTHORS:

Gurevich, V. M., Zheludev, I. S., Rez, I. S.

TITLE:

The Problem of the Nature of Transitional Processes of
Conductivity in Seignettelectrics 71

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4, pp. 691-696

TEXT: In a preceding paper (Ref. 1), the authors studied the transitional processes of conductivity in ceramic barium titanate and showed the interrelation between them and seignettelectric polarization. In the present paper, they attempt to clarify the nature and mechanism of transitional processes of conductivity by comparing the properties of polycrystalline barium titanate, single crystals of Rochelle salt, guanidine-aluminum-sulfate hexahydrate (GAS) and triglycine sulfate. A comparison between the curves drawn and those of polarity reversal in BaTiO_3 and GAS (Figs. 3 and 4) shows the similarity of the two processes; the former, however, takes several minutes, and the latter only microseconds. The curves representing the transitional processes of conductivity and the motion of the domain walls in a Rochelle salt single crystal are shown in Fig. 5. The curves are identical, and the relationship between the transitional

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The Problem of the Nature of Transitional
Processes of Conductivity in Seignetto-
electrics

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B002/B063

processes of conductivity and the orientation of the domains is thus confirmed. However, this contradicts the observation made on triglycine sulfate (Fig. 7). Mention is made of papers by A. F. Ioffe, Ye. V. Sinyakov, D. I. Prokopalo, V. N. Lozovskiy, M. D. Mashkovich, and S. I. Gorelik. The authors thank L. Z. Rusakov for interest in this work. There are 7 figures and 23 references: 15 Soviet, 3 American, 3 British, 1 Japanese, and 1 Hungarian.

X

SUBMITTED: February 26, 1959

Card 2/2

24.2130

78114
SOV/70-5-1-23/30

AUTHORS: Gurevich, V. M., Zheludev, I. S., Rez, I. S.

TITLE: Electric Conductivity of Triglycinesulfate Single Crystals. Brief Communication.

PERIODICAL: Kristallografiya. 1960, Vol 5, Nr 1, pp 142-145 (USSR)

ABSTRACT: The electric conductivity of triglycinesulfate, whose other properties have become well known because of numerous studies since 1956, was examined at 20-78° C and the dielectric constant determined on the basis of obtained data. The method is described in the authors' earlier paper (Abstract 75998). Direct current was applied (to 10 x 10 x 0.3, 10 x 10 x 0.5, and 10 x 10 x 1 mm plates, cut off normal to X, Y, Z axes of the crystals) at different steady-state temperatures both below and above the Curie point (49° C). The plates normal to Y showed

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Electric Conductivity of Triglycinesulfate
Single Crystals. Brief Communication.

78114
SOV/70-5-1-23/30

rectangular symmetric hysteresis loops, P_s was 2.4 microcoulomb per cm^2 and 240 v/cm coercive field at 24°C and 50 cycles. The plates normal to X and Z did not show hysteresis loops. The electric resistance ρ , ohm cm of the plates normal to Y and the temperature dependence of conductivity σ and dielectric constant ϵ are illustrated in Figs. 1 and 3, respectively. Conductivity vs temperature curves for the plates normal to X and Z show abrupt turns at 50°C (just above the Curie point). The resistance of plates does not change its value with the duration of experiments above the Curie point, and at any temperature along Z. There are 5 figures and 7 references; 6 Soviet, 1 U.S. The U. S. reference is: B. T. Matthias, C. E. Miller, J. P. Remeika, Phys. Rev., 104, 849, (1956).

SUBMITTED: July 11, 1959
Card 2/4

Electric Conductivity of Triglycinesulfate
Single Crystals. Brief Communication.

78114

SOV/70-5-1-23/30

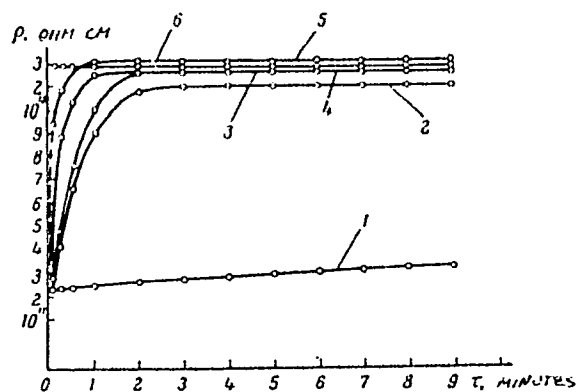


Fig. 1. Changing conductivity of the triglycine-sulfate plates normal to Y at various field strengths (v/cm). (1)10.2; (2)200; (3)400; (4)800; (5)1,200; (6)2,400.

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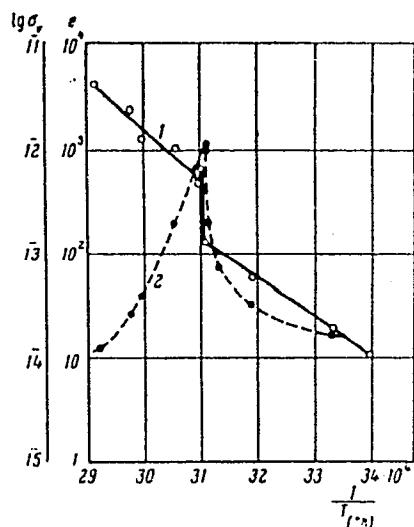


Fig. 3. The dependence of $\lg \sigma_v$ and ϵ on $1/T$ (T , degree absolute) of triglycinesulfate plates normal to Y . (1) $\lg \sigma_v = f(1/T)$, $\epsilon = 2,400 \text{ v/cm}$.

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S/070/60/005/005/011/017
E132/E360

AUTHORS: Gurevich, V.M. and Zheludev, I.S.
TITLE: The Anisotropy of the Electrical Conductivity of
Single Crystals of Lithium Sulphate, $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 5.
pp. 805 - 806

TEXT: The conductivity of single crystals of $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ has been measured in fields of 0.5 to 12,000 V/cm in the range 15 to 80 °C in a dry atmosphere with pre-dried specimens. No loss of water was detected. Measurements were made in the X, Y and Z crystallographic directions on specimens appropriately cut into cubes. The temperature dependence of conductivity was found to be $s = s_0 \exp(-W / kT)$ where W , the dissociation energy, took values $W_x = 1.25$, $W_y = 1.12$ and $W_z = 1.04$ eV for the corresponding axes. No deviation from Ohm's law was found for the temperature range studied. When the air was moist (60-70% humidity) the surface conductivity was 6-10 times greater than the volume conductivity. The anisotropy found is

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S/070/60/005/005/011/017

E132/E360

The Anisotropy of the Electrical Conductivity of Single Crystals
of Lithium Sulphate: $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$

in full conformity with the crystal symmetry. The microhardness was measured by the Khrushchev-Berkovich method as 17.55 kg/mm² in the X direction, 48.90 in the Y and 26.40 in the Z. This correlation of hardness with conductivity (maximum hardness with maximum conductivity and vice versa) is the opposite of that usually found for metals. The electrical strength in all directions is above 100 kV/cm. The effect of the spontaneous polarisation on the longitudinal conductivity could be observed; measuring along the pyroelectric axis (Y) the electrical conductivity in one direction was found to be 10% different from that in the other (e.g. resistivity = $[2.00 \pm 0.01] \times 10^{10}$ ohm cm one way and $[1.80 \pm 0.01] \times 10^{10}$ the other). This kind of measurement can only be made on pyroelectric crystals which are not ferroelectric because in the latter case the spontaneous

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S/070/60/005/005/011/017
E132/E360

The Anisotropy of the Electrical Conductivity of Single Crystals
of Lithium Sulphate, $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$

polarisation will have its sign changed by the measuring field.

Acknowledgments are expressed to I.V. Gavrilova and I.S. Rez.

There are 1 figure and 5 references: 3 Soviet and 2 English.

SUBMITTED: February 27, 1960

Card 3/3

9,4300 (1137, 1138, 1143)

85012

S/048/60/024/010/021/033
B013/B063

AUTHORS: Gurevich, V. M. and Rez, I. S.

TITLE: Investigation of the Possibility of Regulating the Electrical Conductivity of Piezoelectric Lead Metaniobate by Introducing Slight Admixtures 21

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 10, pp. 1259-1260

TEXT: The author studied the possibility of regulating the electrical conductivity of PbNb_2O_6 by doping in much the same way as in the case of semiconductor alloys. The authors used particularly pure PbNb_2O_6 which had a Curie point of $\sim 560 \div 580^\circ\text{C}$ and showed no piezoelectricity. They studied the effect of Li^+ , K^+ , and La^{3+} in quantities of $0.01 \div 0.4$ atom% of the ion to be substituted. A Fig. shows the effect of La^{3+} and Li^+ . K^+ had no effect upon the electrical conductivity. It was found that PbNb_2O_6 samples synthesized from various materials exhibited a largely differing electrical conductivity. This is another proof of the fact that

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Investigation of the Possibility of
Regulating the Electrical Conductivity of
Piezoelectric Lead Metaniobate by
Introducing Slight Admixtures

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B013/B063

the electrical conductivity can be regulated by doping. The classification of the admixtures used indicated that the above-mentioned sample of PbNb_2O_6 had a p-type conductivity. This was confirmed by preliminary determinations of the sign of the thermo-emf made on an undoped standard sample. The authors' recommendations were successfully used in Ref. 1 for piezoelectric substances which were synthesized on the basis of PbNb_2O_6 and had high Curie points. The authors thank R. M. Lerman for specifying the conditions for the thermal treating of the substances. The present paper was read at the Third Conference on Piezoelectricity, which took place in Moscow from January 25 to 30, 1960. There are 1 figure and 1 Soviet reference. ✓

Card 2/2

85874

S/O48/60/024/011/010/036
B006/B056

24.7800(1144,1162)
9.2181(2303,3203)

AUTHORS: Gurevich, V. M. and Zheludev, I. S.

TITLE: The Ferroelectric Properties of Triglycine Sulfate
Monocrystals in the Frequency Range of 0.01 - 50 cps

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 11, pp. 1342 - 1346

TEXT: The present paper is a reproduction of a lecture delivered on the 3rd Conference on Ferroelectricity, which took place in Moscow from January 25 to 30, 1960. In an earlier paper (Ref.1) the authors investigated triglycine sulfate (TGS) monocrystals at very low frequencies, especially 0.01 cps, and found anomalous hysteresis loops. Now investigations are being continued on an improved apparatus with photographic recording of the hysteresis loops, and the range was extended to 50 cps. It was possible to show that the anomalies may be observed not only at very low frequencies, but in the entire range investigated. A block diagram of the experimental arrangement is shown in Fig.1. The arrangement differs from the usual types by the fact that an alternating sinusoidal

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The Ferroelectric Properties of Triglycine
Sulfate Monocrystals in the Frequency Range
of 0.01 - 50 cps

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B006/B056

voltage had been applied to the sample and that an inertialess oscilloscope was used as an indicator. The hysteresis loops (Fig.2) confirmed the frequency and E-dependency of the coercive force of TGS crystals, which had already been found to exist in Ref.1. The quantitative conditions may be seen from Fig.3. As the hysteresis loops become broader with increasing voltage, this means that also the losses increase with E. Fig.4 shows this ($\tan \delta$ is shown as a function of E and temperature). Fig.6 shows the temperature dependence of ϵ and the polarization P_s at 10^6 cps. of the latter measurements are compared with the values from Ref.6 (Curve 3). Fig.7 shows the influence exerted by frequency and field strength upon the shape of the hysteresis loops. The authors thank I. V. Gavrilova and M. F. Koldobskaya for the TGS crystals and I. S. Rez for discussions. There are 7 figures and 6 references:
3 Soviet and 3 US.

ASSOCIATION: Institut kristallografii Akademii nauk SSSR (Institute of
Crystallography of the Academy of Sciences USSR)

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B006/B056

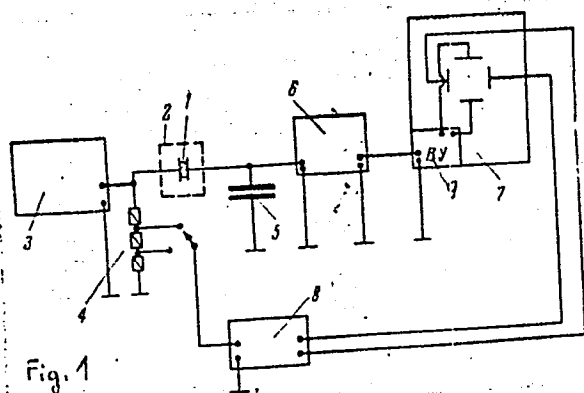
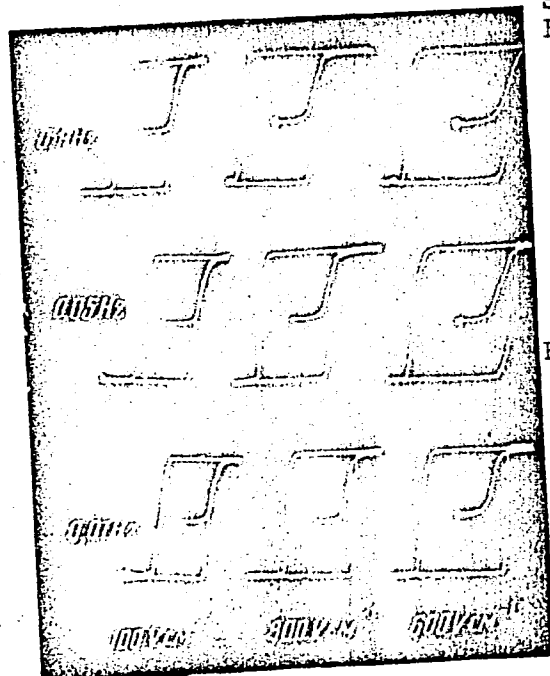


Fig. 1

Legend to Fig. 1: 1) crystal, 2) thermostat ($\pm 0.01^\circ\text{C}$), 3) low frequency generator of the type НГПК-2 (NGPK-2), 4) rheostat, 5) standard capacitor, 6) electrometer-voltmeter, type ЭМУ-3 (EMU-3), 7) d.c. oscilloscope of the type ЭНО-1 (ENO-1), 8) outer d.c. amplifier of the type УИИП-2 (UIIP-2), 9) inner d.c. amplifier.

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Fig. 2

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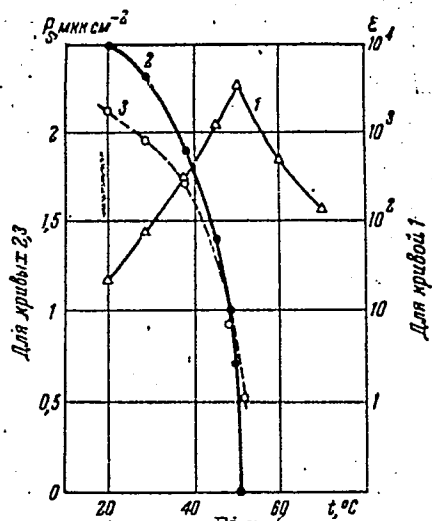


Fig. 6
Рис. 6

Fig. 6

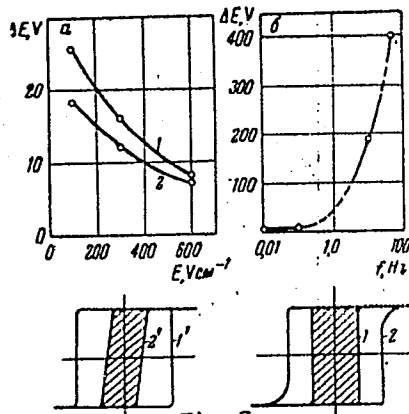


Fig. 7
Рис. 7

Fig. 7

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• GUREVICH, V.M.; ZHELUDEV, I.S.

Anomalous conductance in the phase transition region and
anisotropic conductance of triglycinefluoberyllate single
crystals. Kristallografiia 6 no.5:778-779 S-0 '61.

(Fluoberyllate--Electric properties)
(Glycine)

(MIRA 14:10)

SERDIY, A.G., redaktor; STEPANYANTS, A.K., professor, redaktor; TIKHO-
MIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; VINOGRADOV,
V.N., redaktor; CHERNOZHUKOV, N.I., professor, redaktor; SHCHUK -
KACHEV, V.N., professor, redaktor; CHARYGIN, M.M., professor,
redaktor; DUNAYEV, F.F., professor, redaktor; KUZMAK, Ye.M.,
professor, redaktor; MURAV'YEV, I.M. professor, redaktor;
GUREVICH, V.M., redaktor; MURATOVA, V.M., redaktor, POLOSINA,
A.S., ~~tekhnicheskii~~ redaktor.

[Sixth scientific and technical conference, 1951] Shestaya
nauchno-tekhnicheskaya konferentsiya, 1951. Moskva, Gos.nauchno
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(Petroleum geology)

SERDIY, A.G., redaktor; TIKHOMIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; STEPANYANTS, A.K., professor, redaktor; VINOGRADOV, V.N. redaktor; CHERNOZHUKOV, N.I., professor, redaktor; SHCHELIACHEV V.N., professor, redaktor; CHARYGIN, M.M. professor, redaktor; KUZMAK, Ye.M., professor, redaktor; MURAV'YEV, I.M. professor, redaktor; GUREVICH, V.M., redaktor; MURATOVA, V.M., redaktor; TROFIMOV, A.V., tekhnicheskii redaktor.

[Seventh scientific and technical conference, 1952] Sed'maya nauchno-tekhnicheskaya konferentsiya, 1952. Moskva, Gos.nauchno tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1953. 171 p.
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ZHIGACH, K.F., professor, redaktor; STEPANYANTS, A.K., professor, redaktor; TIKHOMIROV, A.A., kandidat ekonomicheskikh nauk, redaktor; KARAPETYAN, R.O., kandidat filosoficheskikh nauk, redaktor; CHERNOZHUKOV, N.I., professor; YERSHOV, P.R., redaktor; GUREVICH, V.M., redaktor; MURAV'YEV, I.M., professor, redaktor; SHCHELKA-
CHEV, V.N., professor, redaktor; CHARYGIN, M.M., professor, redaktor; DUNAYEV, F.F., professor, redaktor; KUZMAK, Ye.M., professor, redaktor; POLOSINA, A.S., tekhnicheskii redaktor.

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(Geology) (Petroleum)

V.M.
 KUZMAK, Ye.M., prof. doktor tekhn. nauk, red.; TARAN, V.D., prof.; doktor tekhn. nauk, red.; ZHIGACH, K.F., prof., red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A., kand. ekon. nauk, red.; YEGOROV, V.I., kand. ekon. nauk, red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.; CHERNOZHUKOV, N.I., prof., red.; CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.; DAKHNOV, V.N., prof., NAMETKIN, N.S., doktor khim. nauk, red.; ALMAZOV, N.A., dots., VINOGRADOV, V.N., kand. tekhn. nauk, red.; BIRYUKOV, V.I., kand. tekhn. nauk, red.; TAGIYEV, E.I., red.; GUREVICH, V.M., red.; GOR'KOVA, A.A., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Proceedings of the conference of technical schools on the problems of new equipment for the petroleum industry] Mezhevuzovskoe soveshchanie po voprosam novoi tekhniki v neftianoi promyshlennosti. 1958. materialy... Moskva, Gos. nauchno-tekhn. izd-vo neft. i gornotoplivnoi lit-ry. Vol. 3. [Manufacture of petroleum industry equipment] Neftianoe mashinostroenie. 1958. 222 p. (MIRA 11:11)
 (Petroleum industry--Equipment and supplies)

CHERNOZHUKOV, N.I., prof., doktor tekhn.nauk, red.; ZHIGACH, K.F., prof., red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A., kand.ekon. nauk, red.; YEGOROV, V.I., kand.ekon.nauk, red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.; KUZMAK, Ye.M., prof., red.; CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.; DAKHNOV, V.N., prof., red.; NAMETKIN, N.S., doktor khim.nauk, red.; ALMAZOV, N.A., dotsent, red.; VINOGRADOV, V.N., kand.tekhn.nauk, red.; BIRYUKOV, V.I., kand.tekhn.nauk, red.; TAGIYEV, E.I., red.; GUREVICH, V.M., red.; ZAMARAYEVA, K.M., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Petroleum refining; articles] Pererabotka nefi; materialy. Moskva, Gos.nauchno-tekhn.izd-vo nefi i gorno-toplivnoi lit-ry. Vol.2. 1958. 289 p. (MIRA 12:1)

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(Petroleum--Refining)

CHERNYZHUKOV, N.I., prof., doktor tekhn.nauk, red.; ZHIGACH, K.F., prof.,
otvetstvennyy red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A.,
kand.ekon.nauk, red.; YEGOROV, V.I., kand.ekon.nauk, red.; CHARYGIN,
M.M., prof., red.; DUNAYEV, F.F., prof., red.; KUZMAK, Ye.M., prof.,
red.; CHARNYY, I.A., prof., red.; PANCHENKOV, G.M., prof., red.;
DAKHNOV, V.N., prof., red.; NAMEYKIN, N.S., doktor khim.nauk, red.;
ALMAZOV, N.A., dots., red.; VINOGRADOV, V.N., kand.tekhn.nauk, red.;
BIRYUKOV, V.I., kand.tekhn.nauk, red.; TAGIYEV, E.I., red.; GUREVICH,
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red.

[Materials of the Interuniversity Conference on Problems of New Practices in the Petroleum Industry] Materialy mezhvuzovskogo soveshchaniya po voprosam novoy tekhniki v neftyanoy promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry. Vol.2. [Petroleum refining] Pererabotka nefti. 1958. 289 p. (MIRA 11:6)

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 TIKHOMIROV, A.A., kand.ekon.nauk, red.; YEGOROV, V.I., kand.ekon.
 nauk, red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.;
 CHERNOZHUKOV, N.I., prof., red.; KUZMAK, Ye.M., prof., red.;
 CHARNYI, I.A., prof., red.; PANCHENKOV, G.M., prof., red.; DAKHNOV,
 V.N., prof. doktor geologg-mineralogicheskikh nauk, red.; NAMETKIN,
 N.S., doktor khim.nauk, red.; ALMAZOV, N.A., dots., red.; VINOGRADOV,
 V.N., kand.tekhn.nauk, red.; BIRYUKOV, V.I., kand.tekhn.nauk, red.;
 TAGIYEV, E.I., red.; GUREVICH, V.M., red.; DOBRYNINA, N.P., vedushchiy
 red.; MUKHINA, E.A., tekhn.red.

[Proceedings of an interschool conference on problems of new techniques
 in the petroleum industry] Materialy Meshvuzovskogo soveshchaniya
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 nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry. Vo.1.
 [Prospecting and exploitation of oil and gas fields] Razvedka i
 razrabotka neftyanykh i gazovykh mestorozhdenii. 1958. 311 p.
 (MIRA 11:4)

1. Meshvuzovskoye soveshchaniye po voprosam novoy tekhniki v
 neftyanoy promyshlennosti.
 (Petroleum engineering) (Gas, Natural--Geology)

ZHIGACH, K.F., prof., otv.red.; MURAV'YEV, I.M., prof., red.; TIKHOMIROV, A.A., kand.ekonom.nauk; red.; VINOGRADOV, V.N., kand.tekhn.nauk, red.; SIDORENKO, N.V., red.; BRENTS, A.D., red.; CHARYGIN, M.M., prof., red.; DUNAYEV, F.F., prof., red.; CHARNYY, I.A., prof., red.; CHERNOZHUKOV, N.I., prof., red.; KUZMAK, Ye.M., prof., red.; DAKHNOV, V.N., prof., red.; PANCHENKOV, G.M., prof., red.; NAMSTKIN, N.S., prof., red.; TAGIYEV, E.I., prof., red.; BIRYUKOV, V.I., kand.tekhn.nauk, red.; YEGOROV, V.I., kand.tekhn.nauk, red.; ALMAZOV, N.A., dotsent, red.; GUREVICH, V.M., red.; ISAYEVA, V.V., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Development of the gas industry of the U.S.S.R.; from the proceedings of the Interuniversity Scientific Conference on the Problems of the Gas Industry] Mezhevuzovskaya nauchnaya konferentsiya po voprosam gazovoi promyshlennosti. Razvitie gazovoi promyshlennosti SSSR; materialy. Moskva, Gos.nauchno-tekhn.isd-vo neft. i gorno-toplivnoi lit-ry, 1960. 405 p. (MIRA 13:11)

1. Mezhevuzovskaya nauchnaya konferentsiya po voprosam gazovoy promyshlennosti. 2. Glavgaz SSSR (for Brents). 3. Moskovskiy institut neftekhimicheskoi i gazovoi promyshlennosti im. akad.Gubkina (for Charygin, Charnyy).

(Gas industry)

GUREVICH, V.M.; ZHELUDEV, I.S.; REZ, I.S.

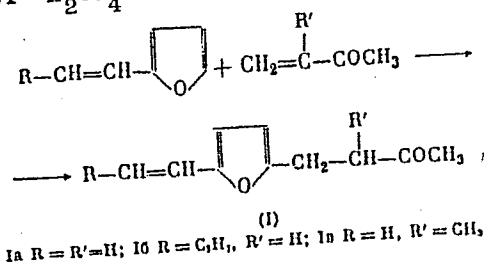
Characteristics of the electrical properties of triglycine
sulfate crystals in the subsonic frequency range. Kristallo-
grafiia 5 no.5:802-805 S-0'60. (MIRA 13:10)
(glycine)

GUREVICH, V.M.; ZHESLUDEV, I.S.

Anisotropy of the electric conductivity of a lithium sulfate
single crystal, $\text{Li}_2\text{SO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$. Kristallografiia 5 no.5:805-806
S-O '60. (MIRA 13:10)
(Lithium sulfate--Electric properties)

S/079/61/031/011/003/015
D202/D305

AUTHORS: Yur'yev, Yu. K., Zefirov, N. S., and Gurevich, V. M.
TITLE: Investigation of the furan series XIX. The reaction of 2-vinyl furans with α, β -unsaturated ketones
PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 11, 1961, 3531-3534
TEXT: In this work, the authors found that 2-vinyl furan reacts with α, β -unsaturated ketones which have a substituted methyl group, in the presence of traces of H_2SO_4 as a catalyst, according to the scheme:



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D202/D305

Investigation of...

where $R = H$, or C_3H_7 , $R_1 = H$ or CH_3 . Similar furan derivatives react in the same way; as these reactions proceed with the formation of resinous side-products, the yield is low, but the method is considered an easy way of preparing furan ketones. Ketones substituted with 2-furyl acetylene were not prepared. The ketones obtained react with maleic anhydride giving additional products. Hydration of the vinyl side chain of furan proceeds smoothly when palladium or $BaSO_4$ are used as a catalyst, and it is easy to obtain an additional product linked to the furan vinyl double bond. Preparation of the following compounds is given: 2-vinyl furan, by a previously known method. Reaction of vinyl furan with thiophenol: a mixture of 4.2 g of thiophenol and 3.8 g of vinyl furan was left in a closed vessel for a few days; the product distilled in vacuo yielded 7.5 g of sulfide (92%); b.p. $146 - 148^\circ C$ (6 mm);

n_D^{20} 1.5811; d_4^{20} 1.0017; MR_D 60.88, calcul. 60.22. $C_{12}H_{12}OSF_5$
[Abstracter's note: "F" probably means fraction], 1-(5-vinyl furyl-2)-butanone-3 (cpd. Ia). To a flask containing 0.2 g of hydroquinone,

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14 g of methyl vinyl acetone and 2 drops of conc. H_2SO_4 , 14.1 g of 2-vinyl furan was added (at $\leq 25^\circ C$). The mixture was stirred for 1 hour, diluted with ether, washed with $NaHCO_3$ and water, and dried over anh. $MgSO_4$; the yield was 5 g (20.5%) after distillation in vacuo in a

stream of nitrogen; b.p. $109-110^\circ C$ (5 mm); n_D^{20} 1.5171; d_4^{20} 1.0301;

MR_D 48.22; calcul. 46.39. The additional product of Ia ketone and

maleic anhydride: 0.82 g of Ia was added to a concentrated solution of 0.49 g of maleic anhydride in absolute ether; after 12 - 15 hours, white crystals were formed, with b.p. $110 - 111^\circ C$ (from benzene). They decomposed after a few hours in contact with air. 2-methyl-1-(5-vinyl furyl-2)-butanone-3 was obtained in the same way, as compound Ia, from 14.1 g vinyl furan and 16.4 g of methyl iso-propylene ketone, yielding 5.1 g of the product; b.p. $105 - 107^\circ C$ (9 mm); n_D^{20} 1.5080; d_4^{20} 1.0390;

MR_D 52.16; calcul. 51.01; $C_{11}H_{14}O_2F_3$. By the same method, 1-(5-pente-

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nyl-1-furyl-2)-butanone-3 was obtained from 20.4 g pentenyl furan and 14 g methyl vinyl ketone; the yield = 6.8 g (23%); b.p. 121 - 122° (5 mm); n_D^{20} 1.5081; d_4^{20} 1.0511; MR_D 62.29; calcul. 60.29. 2-ethyl furan was obtained from 9.4 g of vinyl furan, hydrated in 50 ml of methyl alcohol with 0.1 g Pd on BaSO₄ (5% Pd). After the amount of H₂ equivalent to one double bond has been absorbed, the hydration reaction stopped abruptly. The yield was 8.7 g (90%); physical properties were in good agreement with data given in Western literature. 1-(5-ethyl furyl-2)-butanone-3 was prepared by two methods: (a) 3.5 g of ketone 1a in 40 ml of methane were hydrated as above, with yield of 2.95 g (81%); b.p. 95° (5 mm); n_D^{20} 1.4726; d_4^{20} 0.9986; MR_D 46.67; calcul. 46.88. (b) From 9.6 g of ethyl furan and 10.5 g methyl vinyl ketone with 0.15 ml of concentrated H₂SO₄ by a method described previously for the preparation of 2-methyl furan. 8.6 g of compound identical with that

Card 4/5

Investigation of...

S/079/61/031/011/003/065
D202/D305

obtained by method (a) given above. The above experiments prove that the reactions of alkenyl furans with unsaturated ketones belong to the type of addition-substitution ones. There are 15 references: 6 Soviet-bloc and 9 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: J. Webb, G. Borchardt, U.S. Pat. 2,640,057 (1953); J. Bachman, L. Heisey, J. Am. Chem. Soc. 71, 1985 (1949); D. Coffman, P. Barrick, R. Creamer, M. Reach, J. Am. Chem. Soc. 71, 490 (1949); E. Breault, O. Dremer, Ch. A., 43, 2615 (1949).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University im. M. V. Lomonosov)

SUBMITTED: December 16 1960

Card 5/5

ARINSHTEYN, A.G.; GUREVICH, V.M.; LARIONOV, V.A.

Conference of the Moscow Institute of the Petrochemical and Gas
Industry named for I.M.Gubkina. Izv.vys.ucheb.zav.;neft' i gaz 6
no.11:124-127 '63. (MIRA 17:9)

GUREVICH, V.N.

Dec 1947

USSR/Electricity
Power, Plants, Electric

"Comments on L.I. Dvoskin's Article, 'Switching Systems and Construction of Substations of 110-KW Capacity with Bypassing Circuit Breakers'," G.A. Kireyev, M.M. Belousov, A.I. Nazarov, V.N. Gurevich, Engineers, Etc. 2 pp

"Elektricheskiye Stantsii" No 12

Presents views, comments, and suggestions by several engineers on Dvoskin's article that appeared in "Elektricheskiye Stantsii" No 1 .

PA 50T17

GUREVICH, V. N.

PA 54/49T30

USSR/Electricity
Generators
Voltage Regulation

Dec 48

"Operation of a Generator Without a Pilot Exciter,"
V. N. Gurevich, Engr, $\frac{1}{2}$ p

"Elek Stants" No 12
Plot

Explains attempts to prevent excessively rapid response of the automatic voltage regulator (electric type) in the pilot exciter. Found that by using an electronic voltage regulator in the exciter circuit, pilot exciter could be eliminated. Scheme has been in operation satisfactorily for about a year.

54/49T30

GUREVICH, V. N.

PA 38/49T12

USSR/Electricity
Cables, Electric
Cables, Connectors

Mar 49

"The Use of Single-Phase Cable Connections in an
Open Unit," V. N. Gurevich, Engr, 2 pp

"Elek Stants" No 3

Single-phase 6-kv cables of 150 sq mm cross
section connect generators and step-up transformers
in one station. Original connections for cables
at the open substation were replaced by
hermetically sealed connections, since original
connections caused many cable breakdowns due to
moisture seepage.

38/49T12

GUREVICH, V.R.; DALIN, M.A.; VEDENEYEVA, L.Ya.

Polymerization of ethylene on a chromia catalyst. Azerb.khim.
zhur. no.6:37-43 '63.
(MIRA 17:3)

L 15952-65 EWT(m)/EPF(c)/EMP(j)/T Pc-L/Pr-L RM

ACCESSION NR: AP4049423

S/0316/64/000/001/0069/0075

AUTHOR: Gurevich, V. R.; Dalir, M. A.; Arutyunova, K. M.

TITLE: Polymerization of ethylene on a chromium oxide catalyst. Report No. 2.
Effect of temperature on the activity of the chromium oxide catalyst and molecular weight of the polymer

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 1, 1964, 69-75

TOPIC TAGS: polyethylene, ethylene polymerization, polymerization catalyst, chromium oxide catalyst, catalyst activity, catalyst poison

ABSTRACT: The purpose of the work was to systematize and refine the data on the influence of the reaction temperature on the polymerization rate of ethylene at 100-175C and on the molecular weight of the polymer obtained. Most of the experimental data were obtained by statistical treatment of a series of experiments. It was shown that the temperature dependence of the reaction rate in the 100-175C range consists of three sections with different activation energies. In the 115-145C interval, the reaction rate was shown to be determined by diffusional retardation. A relationship was derived for the variation of the polymerization rate with the temperature and concentration of the catalyst poisons in the reaction zone. The influence of the reaction temperature and concentration of the catalyst poisons

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L 18952-65

ACCESSION NR: AP4049423

in the reaction zone on the molecular weight of the polymer was also investigated.
Orig. art. has: 8 figures and 7 formulas.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: 00

NO REF SOV: 013

OTHER: 001

Card 2/2

GURDZHINYAN, L.D.; SADYKHOV, I.D.; GUREVICH, V.R.; GRABOVSKIY, Yu.P.; GEL'BURD, L.I.;

Viscosimeter for polyolefin solutions. Azerb. khim. zhur. no.1:23-27 '65.
(MIRA 18:7)

1. Nauchno-issledovatel'skiy i proyektnyy institut po kompleksnoy avtomatizatsii proizvodstvennykh protsessov v neftyanoy i khimicheskoy promyshlennosti i VNIIOlefin.

GUREVICH, V.R.; ALIYEVA, Z.S.; GRABOVSKIY, Yu.P.

Rheological properties of concentrated polyethylene solutions.
Azerb.khim.zhur. no.4:80-83 '65.

(MIRA 18:12)

1. VNIIOlefin. Submitted December 15, 1964.

GURIELSON, V. S.

"The Inner Regularity of Fluctuations in Solar Activity, Trudy OGO, 8, 1948.

KOSENKOVA, L.I.; GUREV, I. "Tsekhovskaya", ...

Separation of 0.4g naphthalene chloride by gas chromatography
in different stationary phases. Doklady Akad. Nauk SSSR 240:340-344
Moscow 1979 (DPA 17:8)

1. Institut khimicheskogo sinteza AN SSSR, Leningrad Topchiyeva.

SHUSTER, Frida Maksovna; FEL'DMAN, Aleksandr Markovich; GUREVICH, Vladimir Yudelevich; MALYAVKO, L.T., red.; ZHUK, V.N., tekhn. red.

["Olympic" mathematical problems] Sbornik olimpiadnykh zadach po matematike. Pod red. F.M. Shuster. Minsk, Gos. uch.-pedagog. izd-vo M.-va prosv. BSSR, 1962. 82 p.

(MIRA 16:7)

(White Russia--Mathematics--Study and teaching)

SHUSTEF, Frida Maksovna; FEL'DMAN, Aleksandr Markovich; GUREVICH,
Vladimir Yudelevich; STARINSKAYA, Z.V., red.

[Collection of problems for "Mathematical Olympics"]
Sbornik olimpiadnykh zadach po matematike. Minsk, Na-
rodnaia asveta, 1965. 82 p. (MIRA 18:12)

GURNEVICH, V.Z., inzhener.

Pattern board with electric preheating. Lit.proizv. no.7:13-14
Jl '56. (Patternmaking machinery) (MLRA 9:9)

~~GUPEVICH, V.Z., inzhener.~~

Aluminum sheathed cables in Dutch vessels. Elektrichestvo no.10:
92 0 '56. (MLRA 9:11)
(Netherlands--Electric cables) (Aluminum)

GUREVICH, V.Z., inzhener; BUDARAGINA, I.Ye., inzhener.

Some deductions from shell molding practices in Canada. Lit. proizv.
no.2:30-31 F '57. (MLRA 10:4)
(Shell molding (Founding))

GUREVICH, V.Z.

GUREVICH, V.Z.

Use of IP-9 lacquer for the insulating of electric heating elements.
(MLRA 10:9)
Khim.prom. no.4:244 Je '57.
(Electric insulators and insulation) (Lacquer and lacquering)

GUREVICH, V.

GUREVICH, V.Z.

Experience in drying lumber in petrolatum. Nov. tekhn. i pered. op.
v stroi. 19 no.9:25-26 S '57. (MIRA 10:11)
(Lumber--Drying)

15.8100

67490

SOV/112-59-20-41759

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 20, p 10 (USSR)

AUTHOR: Gurevich, V.Z.

TITLE: Heat-resistant Pressed Material MFK-20

PERIODICAL: Za tekhn. progress (Sovnarkhoz Gor'kovsk. ekon. adm. r-na), 1958, Nr 5, p 13

ABSTRACT: An insulating heat resistant pressed material MFK-20 on a base of melamine resin with an asbestos filler is described. The material has the following characteristics: specific resilience $> 10 \text{ kg} \cdot \text{cm/cm}^2$; strength limit of static bending $> 500 \text{ kg/cm}^2$; Martens heat-resistance $> 200^\circ\text{C}$; electric strength 4 - 5 kv/mm; fluidity $> 80 \text{ mm}$; arc resistance at 10 ma 3 min. For the pressing of parts of MFK-20 a specific pressure of 300 - 400 kg/cm^2 is required; the time under the press is 30 sec per 1 mm of thickness. An additional heat treatment at 150 - 160 $^\circ\text{C}$ during 3 - 5 hours stabilizes the electric characteristics and raises the heat-resistance of the parts.

A.O.M.

Card 1/1

AUTHOR: Gurevich, V.Z., Engineer

SOV/122-58-12-22/32

TITLE: Heat Resisting Enamel (Zharostoykiye Emali)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 12, p 61 (USSR)

ABSTRACT: Few organic heat-resisting, decorative enamels are available for continuous use at temperatures above 70 - 80°C. An enamel designated FG-9, based on silica and organic lacquer with addition of aluminium powder, will give resistance and protection to metals at 400-450°C, but does not have decorative properties. Thus vitreous enamels are normally used, despite their rather low mechanical properties and poor adhesion to metals. A new, coloured, organic enamel has been produced which is based on the FG-9 lacquer in solution in toluol or xylol. Green enamels contain 5 to 10% of CrO₂, and light green enamels 1 to 2% CrO₂ and 4 to 9% TiO₂. The enamel is applied to phosphated steel by ordinary spray techniques. Drying should be effected first for half to one hour at room temperature to evaporate solvent, and then the enamel should be stoved for 1 to 2 hours at 150 - 200°C. Although the enamel hardens in only

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Heat-Resisting Enamel

SOV/122-58-12-22/32

six minutes at this temperature, full adhesiveness is not exhibited until about a day after application. Tests show that colour is stable after repeated exposure at 170 - 180°C and that the adhesiveness will withstand bend through 90° round a 15 mm radius, repeated five times.

Card 2/2

TSYRLIN, M.I.; GUREVICH, V.Z.

Thermal-radiation drying of car bodies. Avt.prom. no.2:38-40
F '60. (MIRA 13:5)

1. Gor'kovskiy avtozavod.
(Automobiles--Painting)

TSYRLIN, M.I.; GUREVICH, V.Z.

Automation of the drying of coatings at the Gorkiy Automobile
Plant. Mashinostroitel' no.5:19-20 My '61. (MIRA 14:5)
(Gorkiy—Motor vehicles—Painting)
(Automation)

GUREVICH, V.Z., inzh.

Reflector-type radiators. Vest. elektroprom. 32 no.9:63-65
S '61. (MIRA 14:8)

(Heat--Transmission) (Infrared rays)

S/196/62/000/010/013/035
E073/E155

AUTHOR: Gurevich, V.Z.

TITLE: Reflector type radiators

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
no.10, 1962, 18, abstract 10 V118. (Vestn.
elektroprom-sti, no.9, 1961, 63-65)

TEXT: For heating most engineering materials low-temperature radiators with an operating temperature of about 400 °C can be used. The design is described of newly developed low-temperature infrared radiators with hermetic tubular electric heating elements. It is shown that for drying varnish coatings, paper, windings after impregnation, casting moulds and cores, and in numerous other processes, such radiators have notable technical and economic advantages. The factors governing the temperature distribution along the radiator for various specific loads, and the intensity of the radiation heating as a function of the distance from the radiator, are given. 5 illustrations.
[Abstractor's note: Complete translation.]

Card 1/1

GUREVICH, Viktor Zalmanovich; GUTTERMAN, K.D., red.; BUL'DYAYEV,
N.A., tekhn. red.

[Electrical infrared radiators] Elektricheskie infrakrasnye
izluchateli. Moskva, Gosenergoizdat, 1963. 53 p. (Biblio-
teka elektrotermista, no.15) (MIRA 16:10)
(Infrared apparatus and appliances)

GUREVICH, Viktor Zalmanovich; DEMIDOV, Nikolay Alekseyevich;
CHIPKOVA, V.G., inzh., retsenzent; MINDIN, G.P., kard.
tekhn. nauk, nauchn. red. ALESHIN, N.I., inzh., red.; CHFAS, M..A,
red.

[Electric heating installations of ships] Sudovye elektro-
nagrevatel'nye ustroystva. Leningrad, Sudostroenie, 1965.
243 p. (MIRA 18:8)

(N)

ACC NR: AM5027755

Monograph

UR/

Gurevich, Viktor Zalmanovich; Denidov, Nikolay Alekseyevich

Electric heating units for ships (Sudovyye elektronagrevatel'nyye ustroystva)
Leningrad, Izd-vo "Sudostroyeniye," 1965. 243 p. illus., biblio. 2700 copies
printed.

TOPIC TAGS: ¹⁴marine engineering, ship component, heat, air heater, heating engineer-
ing, shipbuilding engineering

PURPOSE AND COVERAGE: This book is intended for engineers and technicians in ship-
yards and planning organizations, as well as for qualified workers and students in
schools of higher education and tekhnikums. In the book, material on the design,
technical characteristics, and manufacturing technology of the basic elements of
shipboard electric heating units is presented in systematized and generalized form.
Electric heating units using tubular heaters are described, and requirements per-
taining to shipboard heating units are given, along with the fundamentals of
electrothermy. Various types of ship's galley ranges, heating elements, thermostats,
oil and water heaters are also described. A method for making heat calculations for
electric heaters is shown. The author acknowledges the assistance of engineers,
V. I. Zalyukshnya, V. P. Fedina, G. A. Vl'yashkin, B. A. Serov, and A. F. Denisov
in compiling the book.

TABLE OF CONTENTS (abridged):

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UDC: 629.12.02--83

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Ch. III. Manufacturing process for tubular electric heaters -- 27

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ACC NR: AM5027755

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SUB CODE: 13.1 SUBM DATE: 10May65/ ORIG REF: 031/ OTH REF: 022

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